



***Tillandsia paraibensis*, a new species of Bromeliaceae from Northeastern Brazil**

Tillandsia paraibensis, uma nova espécie de Bromeliaceae do Nordeste do Brasil

Ricardo Ambrósio Soares de Pontes^{1,2}

Abstract

Tillandsia paraibensis is described and illustrated as a new species known only from the state of Paraíba, Brazil. The affinities of this new species to other species and information on its biology are discussed.

Key words: taxonomy, inselbergs, Paraíba.

Resumo

Tillandsia paraibensis, uma espécie nova do estado da Paraíba é descrita e ilustrada. A afinidade desta espécie com outras do gênero e informações sobre sua biologia são discutidas.

Palavras-chave: taxonomia, inselbergs, Paraíba.

Introduction

The Bromeliaceae is currently divided into eight subfamilies, comprising 3,172 species (Stevens 2008). The genus *Tillandsia* is one of the most diverse genera within the family, comprising 595 species (Luther 2008) grouped in six subgenera: *Tillandsia*, *Allardtia* (A. Dietr.) Baker, *Anoplophytum* (Beer) Baker, *Diaphoranthema* (Beer) Baker, *Phytarrhiza* (Vis.) Baker, and *Pseudalcantarea* Mez (Barfusset *et al.* 2005).

According to Leme *et al.* (2010), the genus has a wide geographic distribution, and the species vary greatly in habitat, size, and leaf and flower architecture. The species invariably have entire leaf margins, free petals usually without appendages, stigmas which are usually conduplicate, spiral, or simple-erect, rarely coralliform or with convolute blades, superior ovaries, ovules which are generally long-caudate, and plumose seeds with straight basal appendages.

In 2006, Pontes & Agra cited the occurrence of 12 species of *Tillandsia* for this state of Paraíba. Currently 17 species are recognized for the state (Forzza *et al.* 2012).

Material and Methods

For a description of the species, we used the usual terminology for the family following the works of Smith & Downs (1977), Ehlers & Till (2008), and Leme (1993). We studied the collections of the following herbaria (acronyms according Holmgren *et al.* (2003): JPB, IPA, UFP, RB, HB and a virtual visit to WU.

Results and Discussion

We collected an unusual species of *Tillandsia*, subgenus *Anoplophytum*, from inselbergs in the municipality of Araruna, Paraíba, near the border of Rio Grande do Norte (Fig. 1). After exhaustive taxonomic study we determined that it represents a species new to science and describe it here.

Tillandsia paraibensis R.A. Pontes, *sp. nov.* Type: BRAZIL. PARAÍBA: Araruna, Pedra da Boca State Park, 06°27'02.5"S, 35°40'38"W, 240 m, 23.XII.2010, fl., J.C. Castiliano 01 (holotype JPB!; isotype RB!). Figs. 2a-e and 3a-i

Species nova *Tillandsia* minageirasensis, *affinis*, *inflorescentia erecta pallide rosea, floribus sessilibus cum staminibus quam calyce majoribus, filamentis manifeste plicatis differt.*

¹ Universidade Federal da Paraíba, Centro de Ciências Exatas e da Natureza, Depto. Sistemática e Ecologia, Setor de Botânica, C.P. 5065, 58051-970, João Pessoa, PB, Brasil.

² Author for correspondence: ricardoapontes@yahoo.com.br

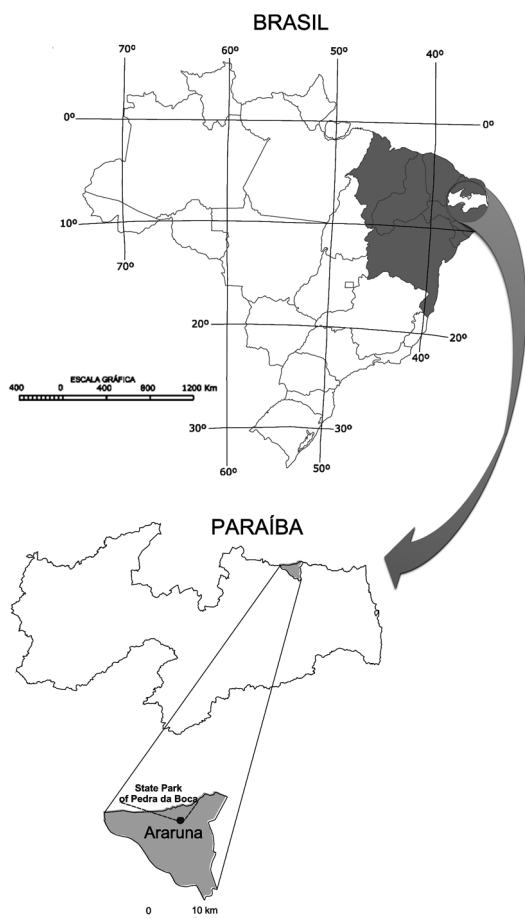


Figure 1 – Location of Paraíba state, highlighting the municipality of Araruna where the State Park of Pedra da Boca is located.

Plant stemless, rupicolous, flowering 13–22 cm high (Fig. 2). *Leaves* many, ca. 70, densely arranged, strongly secund, subcoriaceous toward the base, never exceeding the inflorescence; sheath inconspicuous and barely distinct from the blade; blade strongly narrowly triangular, canaliculate toward the base, 10–14 cm long, ca. 1 cm wide, distinctly shorter than the inflorescence, densely white-lepidote on both sides with trichomes adpressed and completely obscuring the color of the blades, the apex long filiform-caudate. Scape erect, 3–6 cm long, 3–4 mm diameter, green, glabrous; scape-bracts densely imbricate, 4–6 × 0.9–1 cm, lepidote, the apex 1.8–2.5 cm, the base truncate, ecarinate, pale rose, glabrous, finely nerved, distinctly exceeding the internodes, the lower membranous-foliaceous, the upper elliptic-lanceolate, long filiform-caudate; inflorescence

a simple, erect spike, 10–12 flowered, 4.5–5.5 cm long, ca. 2.5 cm diameter, pale rose, the axis slender, terete, glabrous, covered by the floral bracts, greenish, the internodes 2–3 × 0.2–0.4 cm; primary bracts narrowly elliptic to obovate-elliptic, acute, ca. 2.5 × 1 cm, apiculate-caudate (basal ones) to shortly apiculate (upper ones), ecarinate, pale rose, white-lepidote only toward the apex, membranous, finely nerved, erect; floral bracts elliptic-lanceolate, acute and minutely apiculate, 2–2.5 × 1 cm, the base truncate, ecarinate, pale rose, glabrous, membranous, finely nerved, never exceeding 1/2 the length of the petals, imbricate. Flowers 2–2.5 cm long, odorless, erect, polystichously spirally arranged, sessile; sepals lanceolate, acute, ca. 1.5 × 0.5 cm, glabrous, greenish, ecarinate, membranous, inconspicuously connate at base, the margin hyaline; petals sublinear, 2–2.5 × 0.3 cm, slightly broader toward apex, 5 mm wide, elliptic, recurved at anthesis, white, membranous, free. Stamens equaling the stylet, ca. 2 mm above the base, filaments flat, membranous, hyaline, strongly plicate, the anthers ca. 2 mm long, linear, obtuse at both ends, dorsifixed near the base; ovary subglobose, greenish, glabrous; style elongate, cylindrical, glabrous; stigma conduplicate-spiral, recurved blades, hyaline-whitish. Fruits and seeds not observed.

It occurs in Brazil, in the state of Paraíba, region of Curimataú. It is known only on three inselbergs in the Pedra da Boca State Park: i.e., Pedra do Carneiro, Pedra da Santa, and Pedra da Boca. *Tillandsia paraibensis* grows on vertical granite rock in full sun, usually in scattered, small clumps formed by few individuals. Elevation is 240 m. Flowering occurs in October. We observed it for over five years in the field and in cultivation, with no record of flowering. Live specimens of this new *Tillandsia* species are in cultivation in the bromeliad collection of the João Pessoa Botanical Gardens, Paraíba.

The specific epithet comes from the collected region, Paraíba state.

This new species is morphologically similar to *Tillandsia minasgeraisensis* Ehlers & W. Till (Tab. 1), a terrestrial or rupicolous species (from habitat “*campos rupestres*”), near Diamantina (18°14′56″S, 43°36′0″W), in the state of Minas Gerais (Ehlers & Till 2008). *Tillandsia paraibensis* (Fig. 1) differs from *T. minasgeraisensis* by its erect, pale rose inflorescence (vs. curved and coral), floral bracts not exceeding half of the petal length (vs. equal to the height of the flower), and filaments strongly plicate (vs. slightly plicate).

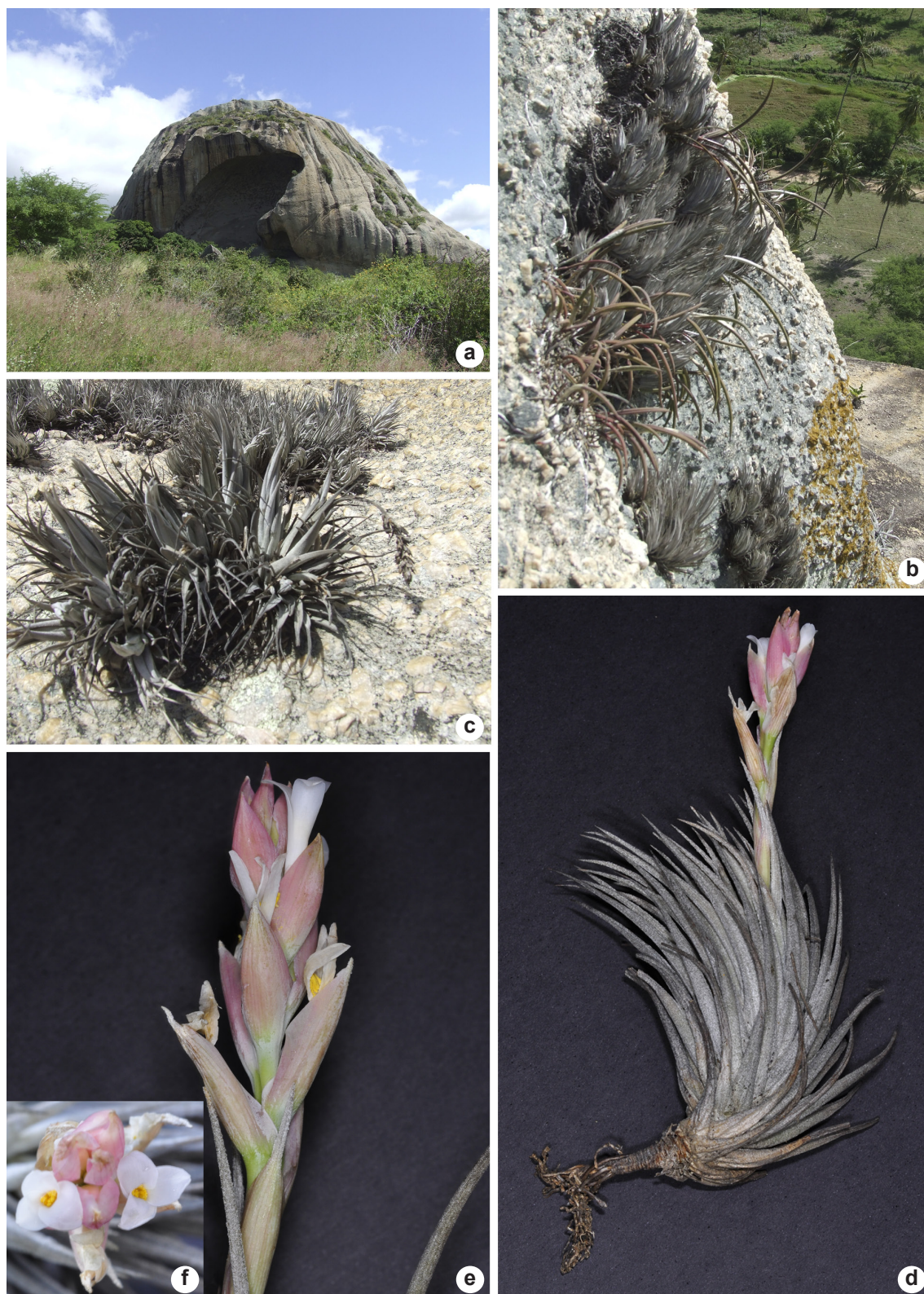
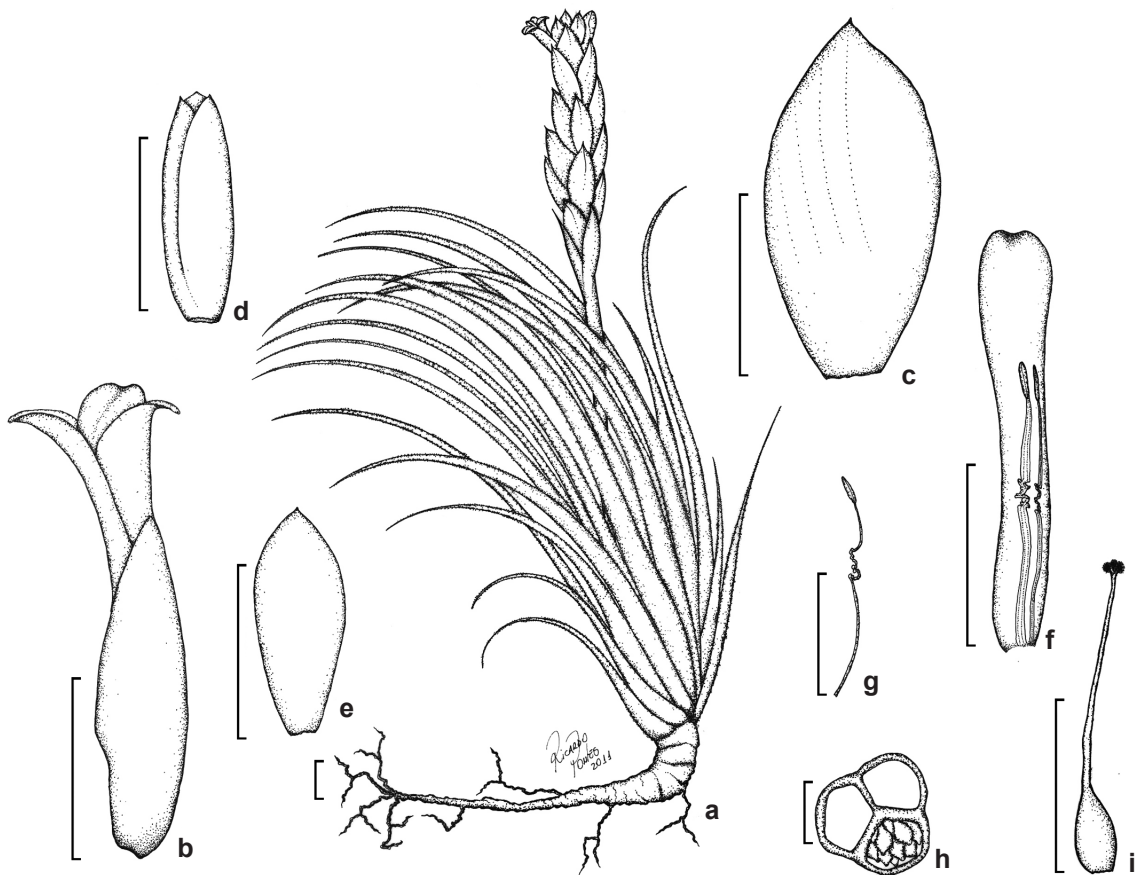


Figure 2 – *Tillandsia paraibensis* – a. Pedra da Boca State Park, detail of Pedra do Carneiro; b. population on vertical rock, with *Brassavola turbeculata* Hook. (Orchidaceae); c. flowering habit; d. detail of inflorescence; e. flowers in top view; f. flowers in top view.

Table 1 – Morphological comparison of *Tillandsia paraibensis* and *T. minasgeraisensis*.

Attributes	<i>Tillandsia paraibensis</i>	<i>Tillandsia minasgeraisensis</i>
Habitat	Granitic rocks	Flat rocks
Leaves	10–14 cm, strongly secund, never exceeding the inflorescence	10 cm, more or less secund, not exceeding the inflorescence
Scape	Erect, 3–6 cm long	Curved, 5–7 cm long
Scape bracts	Elliptic-lanceolate, pale rose, lepidote	Elliptic-acuminate, red, finely pruinose
Floral bracts	Elliptic-lanceolate, 2–2.5 cm, pale rose, glabrous	Ovate or elliptic, 2–2.3 cm, coralline, finely pruinose-lepidote
Flower	2–2.5 cm, sessile	2.6 cm, sessile
Sepals	Lanceolate, 1.5 cm	Ovate, 1.4–1.7 cm
Petals	Sublinear, 2–2.5 cm, apex elliptic, white	Lingulate, 2.6 cm, apex slightly crenate, white
Stamens	Equaling the stylet	Longer than the stylet
Anthers	2 mm long	3 mm long
Stigma	Recurved blades	Erect blades

**Figura 3** – *Tillandsia paraibensis* – a. habit; b. flower; c. floral bracts; d. calyx; e. sepal; f. staminate petal; g. plicate stamen; h. pistil; i. cross section of the ovary. Scale = 1 cm. (R.A. Pontes 712).

Key to species of the *Tillandsia paraibensis* and *T. minasgeraisensis*

1. Scape less than 7 cm long; floral bracts equal to or shorter than the petals; leaves secund.
 2. Inflorescence recurved, coralline; scape bracts red; floral bracts pruinose, equaling the flowers; sepals ovate; stems longer than the style (Minas Gerais) *T. minasgeraisensis*
 - 2'. Inflorescence erect, pale rose; scape bracts pale rose; floral bracts glabrous, less than 1/2 the length of the flowers; sepals lanceolate; stems equalling the style (Paraíba) *T. paraibensis* (Fig. 3)

Acknowledgements

I thank Dr. William Wayt Thomas for corrections of the English and suggestions on the manuscript; Dr. Elton Leme for publications and for suggestions, and to friend and professional climber Júlio César Casteliano, for monitoring and collecting the species in this difficult to reach area.

References

- Barfuss, M.H.J.; Rosabelle, S.; Till, W. & Stuessy, T.F. 2005. Phylogenetic relationships in subfamily Tillandsioideae (Bromeliaceae) based on DNA sequence data from seven plantid regions. *American Journal of Botany* 92: 337-351.
- Ehlers, R & Till, W. 2008. *Tillandsia minasgeraisensis* Ehlers & W. Till spec. nov. *J. Bromeliad Soc.* 58: 245-249.
- Forzza, R.C.; Costa, A.; Siqueira Filho, J.A.; Martinelli, G.; Monteiro, R.F.; Santos-Silva, F. & Saraiva, D.P. 2012. Bromeliaceae. In: Forzza, R.C. *et al.* (eds.). Lista de espécies da flora do Brasil. Instituto de Pesquisas Jardim Botânico, Rio de Janeiro. Available in <<http://floradobrasil.jbrj.gov.br/2011>>. Access on 3 Jan 2012.
- Holmgren, P.K.; Holmgren, N.H. & Barnett, L.C. (eds.). 2003. *Index Herbariorum*. Part I: The herbaria of the world. 8th ed. New York Botanical Garden, New York. 704p.
- Leme, E.M.C. 1993. Two new lithophytic species from Bahia, Brazil. *Tillandsia milagrensis* sp. nov. *J. Bromeliad Soc.* 43: 243-244.
- Leme, E.M.C.; Fraga, C.N.; Kollmann, L.J.C.; Brown, G.K.; Till, W.; Ribeiro, O.B.C. & Machado, M.C.; Monteiro, F.J.S. & Fontana, A.P. 2010. Miscellaneous new species in the Brazilian Bromeliaceae. *Rodriguésia* 61: 21-67.
- Luther, H. E. 2008. An alphabetical list of bromeliad binomials. 11th ed. The Bromeliad Society International. The Marie Selby Botanical Gardens, Sarasota. 110p.
- Pontes, R.A.S & Agra, M.F. 2006. Flora da Paraíba, Brasil: *Tillandsia* L. (Bromeliaceae). *Rodriguésia* 57: 47-61.
- Smith, L.B & Downs, R.J. 1977. Tillandsioideae (Bromeliaceae). *Flora Neotropica Monogr.* 14. Hafner Press, New York. 1401p.
- Stevens, P.F. (2008 onwards). Angiosperm Phylogeny Website. Version 9, June 2008. Available in <<http://www.mobot.org/MOBOT/research/APweb/>>. Access on 1 Nov 2010.